Enabling new mindsets and transformative skills for negotiating and activating climate action: Lessons from UNFCCC conferences of the parties

Citation for the original published paper (version of record):
Wamsler, C., Schäpke, N., Fraude, C. et al (2020). Enabling new mindsets and transformative skills for negotiating and activating climate action:
Lessons from UNFCCC conferences of the parties. Environmental Science and Policy, 112: 227-235.
http://dx.doi.org/10.1016/j.envsci.2020.06.005

Environmental Science and Policy 112 (2020) 227–235

Contents lists available at ScienceDirect

Environmental Science and Policy

journal homepage: www.elsevier.com/locate/envsci

Enabling new mindsets and transformative skills for negotiating and activating climate action: Lessons from UNFCCC conferences of the parties

Christine Wamsler[a,*], Niko Schäpke[b], Carolin Fraude[c], Dorota Stasiak[c], Thomas Bruhn[c], Mark Lawrence[c], Heike Schroeder[d,e], Luis Mundaca[f]

[a] Lund University Centre for Sustainability Studies (LUCSUS), Lund, Sweden
[b] Chalmers University of Technology, Göteborg, Sweden
[c] Institute for Advanced Sustainability Studies (IASS), Potsdam, Germany
[d] University of East Anglia, Norwich, UK
[e] Tyndall Centre for Climate Change Research, UK
[f] International Institution of Industrial Environmental Economics (IIIEE), Lund, Sweden

ARTICLE INFO

Keywords:
Paris agreement
Conference of the parties
Climate change mitigation
Climate change adaptation
Sustainable development
Mindsets
Values
Inner qualities
Inner capacities
Worldviews
Beliefs
Personal sphere of transformation
Paradigm shift
Inner transformation
Subjectivity
Relationality

ABSTRACT

Technological and policy solutions for transitioning to a fossil-free society exist, many countries could afford the transition, and rational arguments for rapid climate action abound. Yet effective action is still lacking. Dominant policy approaches have failed to generate action at anywhere near the rate, scale or depth needed to avoid potentially catastrophic futures. This is despite 30 years of climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), and wide-ranging actions at national, transnational and sub-national levels. Practitioners and scholars are, thus, increasingly arguing that also the root causes of the problem must be addressed – the mindset (or paradigm) out of which the climate emergency has arisen. Against this background, we investigate decision-makers' views of the need for a different mindset and inner qualities that can support negotiating and activating climate action, along with factors that could enable such a mindset shift. Data were collected during participatory workshops run at the 25th UNFCCC Conference of the Parties (COP25) in 2019, and comprise surveys, as well as social media communication and semi-structured interviews with COP attendees. Our results underline vast agreement among participants regarding the need for a mindset shift that can support new ways of communication and collaboration, based on more relational modes of knowing, being and acting. They also suggest the emergence of such a mindset shift across sectors and contexts, but not yet at the collective and systems levels. Finally, they highlight the importance of transformative skills and the need for experimental, safe spaces. The latter are seen as a visible manifestation and enabler that can support agency for change through shared self-reflection, experience and practice. We present a transformative skills framework, and conclude with further research needs and policy recommendations.

1. Introduction

The complex issue of climate change is one that our society is struggling to address, and it is an integral component of sustainable development worldwide (UN, 2016; Kuyper et al., 2018a). Technological and policy solutions for transitioning to a fossil-free society exist, many countries could afford the transition, and rational arguments for rapid climate action abound (IPCC, 2018). At the same time, effective measures are still lacking (IPCC, 2018; Fazey et al., 2018).

The dominant approaches have not generated action at anywhere near the rate, scale or depth needed to avoid potentially catastrophic futures, despite 30 years of climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), and wide-ranging actions at national and sub-national levels (UNFCCC, 2020a, 2020b). These approaches have, so far, focused on the external world of wider socio-economic structures, governance dynamics, economic incentives, and technology (Mundaca et al., 2019). New approaches are urgently needed to support a more profound cultural shift and transformation towards sustainability (Adger et al., 2013; O'Brien, 2018; Rimanoczy, 2014; Grusovnik, 2012; Waddock, 2015).

* Corresponding author.
E-mail addresses: christine.wamsler@lucsus.lu.se (C. Wamsler), schapke@chalmers.se (N. Schäpke), Carolin.Fraude@iass-potsdam.de (C. Fraude), Dorota.Stasiak@iass-potsdam.de (D. Stasiak), thomas.bruhn@iass-potsdam.de (T. Bruhn), Mark.Lawrence@iass-potsdam.de (M. Lawrence), H.Schroeder@uea.ac.uk (H. Schroeder), luis.mundaca@iiiee.lu.se (L. Mundaca).

https://doi.org/10.1016/j.envsci.2020.06.005
Received 9 April 2020; Received in revised form 8 June 2020; Accepted 8 June 2020
Available online 01 July 2020

Accordingly, practitioners and scholars are increasingly calling for a new, complementary way to tackle the issue in a way that addresses the root cause of the problem, i.e. the mindset (or paradigm) out of which the system arises. Mindsets are the internal lens through which people see and navigate life. Climate and energy systems are constantly changing, and these changes are shaped by people. Therefore, people's mindsets (i.e., their values, beliefs, worldviews and associated cognitive/emotional and relational capacities[1]) are potential 'deep leverage points' for related transformations (Kagan, 2010; Kassel et al., 2016; Meadows, 1999; Wamsler, 2020a; Woiwode et al., 2020). At the same time, there is hardly any comprehensive understanding and research on the personal skills or qualities that would be conducive to such leverage (Carter, 2011; Grasso and Tàbara, 2019; Ives et al., 2019; Wamsler, 2018, 2020a).

Against this background, we investigate decision-makers' views on the need for, and potential of a change in mindset (and associated skills/ qualities) when negotiating and activating climate action, and factors that could enable such a mindset shift. We focus specifically on the negotiation and collaboration culture of the UNFCCC Conferences of the Parties (COPs), particularly COP25 that was held in 2019 in Madrid, Spain. The COP is the highest decision-making body of the UNFCCC. All States that are Parties to the Convention are represented, and the purpose of the Conference is to review progress, and take decisions necessary to promote the Convention's effective implementation (UNFCC 2020b). We begin with a description of our methodology (Section 2), then present the results (Section 3), and conclude with further research needs and some policy recommendations (Section 4).

2. Methodology

This article presents the results of a self-reflexive case study of the 'Co-Creative Reflection and Dialogue Space' (hereinafter referred to as 'the R&D Space') held during COP25. Data comes from surveys of R&D Space participants, social media communications, and semi-structured interviews with key informants.

The R&D Space ran over the full two weeks of the COP. It was the result of a transdisciplinary effort between different research, education and practice organizations,[2] and had been piloted in 2018 during COP24 in Katowice, Poland. It was organized around three, overarching themes: i) how participants perceive current COP culture; ii) what mindsets need to be cultivated to support a more conducive culture for climate actions; and iii) how they could be enabled. The themes were addressed in the context of a series of 20 workshops and 21 guest sessions (organized by partner organizations) of which each lasted for ca. 1,5 h. The R&D Space attracted a total of more than 250 participants from different organizations and contexts (Tables 1 and 2), out of which ca. 200 participated in a survey. They included both negotiators and observers, as well as senior- and junior-level participants.

In addition, to triangulate the data and engage with wider audiences, social media (Twitter, blogs) were used, and nine semi-structured interviews were held with key informants. The latter were selected based on their in-depth knowledge of: i) COP structures and negotiations in general, or ii) the R&D Space in particular. They included two high-level UN officials and policy advisors, one former party negotiator, one professor in international climate policy, and COP-experienced representatives of indigenous groups, international climate NGOs, and the international youth organization, which is an official body of the UNFCCC (Table 3). Surveys, social media communication and interviews were all based on the same three themes, and were guided by the same questions (Suppl. Material A, B). A literature review extended the data collection by providing contextual information on the processes of negotiating, enabling, and pursuing climate action.

Table 1
Overview of registered participants in the 'Co-Creative Reflection and Dialogue Space' and guest sessions, by type of actor.

Actors	Participants in regular workshops	Participants in guest sessions
Government	11	6.5*
IGO (Inter-Governmental Organizations)	10	14.5*
ENGO (Environmental NGOs)	8	14
BINGO (Business NGOs)	4	4.5*
Farmers (farmers and agricultural NGOs)	1	
IPO (Indigenous Peoples Organization)		1
LGMA (Local Government and Municipal Authorities)		
RINGO (Research and Independent NGOs)	36	48
TUNGO (Trade Union NGOs)	1	
W&G (Woman/ Gender NGOs)	4.5*	5.5*
YOUNGO (Youth NGOs)	9.5*	18
Other (e.g. media, social movements, no or multiple affiliations such as RINGO + YOUNGO + Gender)	11	6
Total	95	118
Overall total (registered total)		**213***
Overall total (registered and unregistered total)		**>250**

*The registered number of participants in regular sessions is based on surveys and session protocols; the registered number of participants in guest sessions is based on survey responses. Participants who indicated an affiliation with two bodies (or regions, see Table 2) were counted as 0.5 in each category, while those who indicated more than two affiliations were counted as 'other'. There were at least 40 unregistered participants, but exact records of these were not kept. In addition, some participants only attended parts of a session, and were also not recorded.

The survey data, minutes of workshops and other sessions, and interview transcripts were analyzed with a combination of literal reading and grounded theory (Corbin and Strauss, 1990; Glaser and Strauss, 1967). The aim was to identify patterns regarding the need for, and potential of a different mindset and associated inner qualities to support the negotiation and activation of climate action, together with the factors that could enable such a mindset shift. A combination of open coding, axial coding, and selective coding was applied (Strauss, 1987).[3] The analysis paid particular attention to the context, as data were 'produced' under certain conditions (Hodder, 1994). Notably, these included the framing of the R&D Space (and the associated sampling bias)[4], potentially false expectations of participants, or their need to protect their organization's reputation. The illustrative verbatim that are included in the following sections were anonymized to protect the privacy of participants.

3. Results

In line with the research aim, results are structured around perspectives regarding the need to change current cultures and mindsets (Sections 3.1), together with the personal skills/ qualities (Section 3.2)

[1] These are commonly also referred to as inner (or personal) dimensions.

[2] The R&D Space was a collaborative effort between groups at the Institute for Advances in Sustainability Studies (IASS), Potsdam, together with partners from the University of East Anglia, UK, Chalmers University and Lund University in Sweden, See www.iass-potsdam.de/en/news/iass-fosters-dialogue-and-reflection-climate-conference.

[3] See Wamsler (2007) for further information.

[4] Participation in the R&D Space, and guest sessions was voluntary. It can, therefore, be assumed that participants had a general interest in the issues of culture and mindsets, which can lead to self-selection bias. However, interest may be triggered by many different aspects (e.g. general curiosity, openness, or critical perspectives on the issue). In addition, potential sampling bias was addressed through data triangulation and the range of voices included in the different analyses (cf. Section 3).

Table 2
Overview of registered participants in the 'Co-Creative Reflection and Dialogue Space' and guest sessions, by geographical region.

	African states	Asian states	Eastern European states	Latin America and the Caribbean	Western Europe	Northern America	Other (incl. no or multiple attributions	Australia (Asia)	Overall/ total
Regular workshops	12.5*	6	6.5*	17	35.5*	9.5*	4	6	95
Guest sessions	10	12	5	25.5*	26	30.5*	5	4	118

**See* Table 1.

Table 3
Overview of interviewed key informants.

Type of actor	Organization	Role in organization	Role at COP25	Why selected/ relevance
IGO	UNFCCC	High-level representative	Government support and expert advisor	Extensive expertise on international climate diplomacy and UNFCCC COPs*
IGO	UN ESCAP	High-level representative	Expert advisor, speaker and panelist	Climate and development policy expert, global south perspective (Asia) *
ENGO	Mission 2020	High-level strategy advisor	Advisor and attendee	International climate change policy and diplomacy expert. Extensive experience as a government negotiator at earlier COPs*
RINGO	Western European University	Professor	Attendee, researching COP25	Long-term knowledge and research on international climate diplomacy and UNFCCC COPs*
ENGO	International Institute for Sustainable Development	High-level policy adviser	Side event panelist and host	Global south perspective, in-depth expertise on national adaptation plans, climate justice*
IPO	Southern American Indigenous Peoples Group	Representative	Attendee	Perspective of vulnerable groups, and several years participation in COPs*
IPO	Northern American Indigenous Peoples Group	Priest	Side event panelist	Perspective of vulnerable groups, contribution of tacit and indigenous knowledge*
ENGO	Independent	Artist, Ocean Activist	Attendee	Extensive experience with building action-oriented coalitions*
YOUNGO	YMCA	Youth observer	YOUNGO representative	Climate negotiation experience and overview of youth movement positions*

*All key informants had extensive experience with participating in COPs (3–15 years).
Abbreviations: IGO: Intergovernmental Organizations; NGO: Non-Governmental Organization; BINGO: business and industry NGOs; ENGO: environmental NGOs; LGMA: local government and municipal authorities; IPO: indigenous peoples organizations; RINGO: research and independent NGOs; TUNGO: trade union NGOs; Farmers: farmers and agricultural NGOs; W&G: women and gender NGOs; YOUNGO: youth NGOs.

and factors (Section 3.3) that could enable related transformation. Each section begins with a summary of identified patterns, followed by a detailed discussion of these patterns.

3.1. Cultures and mindsets

Overall, the following patterns were identified:

- There is vast agreement regarding the need for a mindset shift in order to change the current negotiation culture and support better ways of communication, collaboration and action-taking.
- A related shift is slowly emerging across different sectors and contexts, with young people being a key driving force.
- At the same time, a paradigm shift has not yet happened at the collective and systems level.[5]

3.1.1. Current culture

Our data shows that around 96 % of survey respondents and interviewees 'fully agree' or 'agree' that there is a need to change the current culture and associated mindsets to improve negotiations for, and the activation of, climate actions. The current culture is seen as ineffective; in particular, it is described as: i) power-laden, top-down, male-dominated and exclusive; ii) instrumental (versus ethical/ intrinsic/ integral), with confrontational and judgmental attitudes; iii) driven by information/ data and science-based (impersonal) approaches; with iv) narrow-minded and fragmented/ sectoral foci; and v) lacking a sense of urgency and action-taking.

Many respondents referred to a 'lack of diversity in representation', 'dominant western/ northern rules and norms', 'elitist thinking', 'green colonialism' and 'annex one division' seen, for instance in physical aspects (e.g. the size and location of representative's pavilions and zones)[6], 'deeply-rooted distrust', and in 'the way of communicating and interacting' in the negotiations. A representative of indigenous people, who had participated in several COPs observed:

> (…) our communication and our values (…) are more closely aligned with indigenous culture and cosmology, and they are antagonistic to the popular culture, which we find here at COP25. When those antagonistic features are there, we don't find doors opening to us to have conversations, to have collaboration (…).

[5] The term paradigm shift can, in part, be seen as a synonym for mindset shift. However, it is used here to indicate or denote a mindset shift at the broadest, systems level, as understood in systems theory (cf. Introduction).

[6] One former negotiator said, 'the majority of negotiators and business people will never be going into the civil society part because there is too much hustle' (due to location, security issues, etc.).

A UNFCCC representative stated:

There is a very, very deeply rooted [mutual] *distrust between developing countries and developed countries. (…) Basically, there is an invisible divide in the room between the ex-colonial masters and the ex-colonial servants.*

The structures described above translate into instrumental, confrontational and judgmental attitudes. Several respondents stated that there is 'little effort to find common positions'. On the contrary, self-serving objectives (jobs, job titles, career, status), power-relations, tactical considerations and economic concerns are said to dominate, and the working environment is often described as 'ignorant', 'lack of listening', 'aggressive', 'stressful' or 'toxic'. Accordingly, several participants stated that 'people are quick to categorize other people'. In particular, 'black African people are tagged as "They need help", without even talking to them.' One interviewee summarizes this aspect by stating that:

The main COP system enhances dissociation and self-disconnection, which results in inefficient interactions based on stress, fear and worry. Separation (…) creates a need to be heard, and therefore to compete.

It is obvious from our analyses that not only the causes and impacts of climate change, but also associated negotiations, norms and decision-making are closely interlinked with people's emotions, inner beliefs, worldviews and values. Despite this, current COP approaches are information- and science-based. Several participants explicitly stated, in different forms, that 'inner dimensions and the need for changing paradigms are not addressed'.

This narrow focus is also seen in fragmented, sectoral foci and abstract representations of climate change. Several participants stated that there is a rather narrow understanding of the problem, leading to sectoral solutions (disciplinary silos), and fragmented approaches that neglect relational aspects. This is reflected in an apparent failure to 'explore shared ideas and develop solutions based on shared visions' that go beyond short-term (personal or political) benefits.

Another related theme was the lack of a sense of urgency and action-taking. Most participants noted that the current situation is 'not moving towards actions', and they wanted to see 'real actions, not only meaningless dialogue'. A former negotiator stated that 'we're really not getting to the heart of anything'. A lack of experience or understanding of climate change impacts (e.g. on the poor or marginalized) on behalf of some negotiators was mentioned as an important reason.

Accordingly, some participants highlighted the urgent need to better understand and address 'non-action' at personal and collective levels. In this context, participants indicated the non-sustainable practices and behavior seen at the COP itself (e.g. regarding food and travel options). A high-level UN advisor states:

There is also this question about personal credibility versus rhetoric. (…) Quite often people are arguing and defending their arguments based on the misery of the people they are speaking for, while those who actually do speak live an international jet set life, well-paid delegates. (…) You see people who speak on behalf of the poorest and they have a ten-thousand-dollar timepiece on their wrist.

Importantly, several R&D Space participants and interviewees noted that their experience of COP culture was representative of current structures, systems, and trends worldwide. These structures were described as due to an underlying worldview based on industrialization and capitalism. The latter was said to lead to a 'lost connection to nature', others, society and ourselves and, in turn, to issues of exclusion, injustice and who is right.[7] Therefore, some participants who stated that they were 'neutral' regarding the need to change current cultures, based their view on the fact that this need is not particular to the COP. Furthermore, respondents highlighted the need to differentiate between the various COP settings, and the fact that cultural change requires time and contextualization. In the words of an international NGO representative from North America:

I think there are really two COPs: the formal negotiations and the side events/ exhibits. Both cultures are poor in terms of communication … and for the negotiators, the COP is the wrong time to improve communication. We need to work with these issues earlier, in the respective home countries.

The latter opinion was also supported by negotiators, who said that they were during COPs under pressure to adopt a strong position and short-term (often market-based) goals, leading to a fear of betraying their own people and convictions.

3.1.2. Emerging shift

Many respondents perceived an emerging shift of current cultures. The importance of youth groups and social movements was highlighted in this context. One participant expressed this by stating that 'society is beginning to listen to future generations, i.e. the present youth, because they have clarity, passion and a purity of message.'

An emerging shift was perceived both in the context of formal negotiations and side events. It relates to broader representation and inclusion (e.g. of youth and indigenous people), together with a slowly-declining belief in incremental approaches (e.g. technologies). At the same time, there is growing recognition of the need for a broader, cultural transformation, and more relational approaches. While interviewees confirmed that such a 'perspective shift is also happening among the big players', emerging trends are most apparent in the context of side events:

I believe that the COPs are becoming better and better when it comes to engagement and collaboration. There are spaces that have been making big milestones every year (…) The thing is, how do we take this change inside the negotiation room?

Participants agreed that a paradigm shift has not yet happened at the collective or systems level. A representative from an environmental organization in South Africa observed:

The [culture and] systems are not changing nearly fast enough as is necessary. So, let's not say intergenerational justice is happening because it's not. (…) Culture is an evolving thing. It has to evolve with the needs of the time.

Accordingly, most respondents agreed that we need a change in mindsets. Those who were neutral or disagreed based their arguments on positive experiences with certain COP side events, not the negotiations. However, most saw these events as equally 'exclusive', 'self-promoting' and 'a competition for networking' and, thus, as an expression of the current culture that was described in Section 3.1.1.

[7] The current culture is supported by abstract, scientific representations of climate change impacts (see above), together with negotiators lack of practical experience of these impacts. A high-level UN representative states: 'In these negotiations we actually have a strong cultural uniformity, which might be an issue because, of course, we are representing very different societies (…), it is a certain type of negotiator that are being tasked with these negotiations that then have difficulties relating to their reality back home.' Another key informant, who has followed the COP negotiations closely over the past decade says: 'Those that feel that their work, their cultural identity is threatened by climate policy, they are not visible at all.' In the words of an indigenous community representative: 'We have a crisis, which is called climate change. But for us as indigenous, this is not about climate change. For us you simply have to watch nature, and you will realize that things do not happen anymore as usual. The animals do not take the same path anymore, the rivers have gone, if you go to the ocean you do not see the same rocks and the same fish anymore. This is what climate change is to us.'

3.2. Mindset shift through transformative skills

The following patterns were identified:

- Change is said to be supported through improved relational qualities and modes of knowing, being and acting. Integrity, equity and the human–nature connection are recurrent themes in this context.
- Five clusters of transformative skills to support relational qualities were identified.

Most respondents expressed that a change in mindsets can be supported by changing the way we relate to ourselves, others, the environment, and/or the future. A range of personal capacities or skills that can support such relational qualities were mentioned, and can be seen as a response to the dominant culture described in Section 3.1.1. The emerging patterns can be systematised in five clusters of transformative skills described below.

3.2.1. Openness, self-awareness and reflection

Here, terms such as 'openness', 'open-minded', 'reflective', and 'embodied' were mentioned. Respondents noted a need for skills that can 'allow a different kind of communication, not confrontational', not simply aimed at getting arguments across, but instead '[en]able listening'. Such terms and statements were particularly apparent in relation to the need to address issues of exclusion, confrontational and judgmental attitudes, and to identify new approaches to climate change. In addition, openness, self-awareness and reflection were said to be particularly crucial for people's 'willingness to learn, adapt and change'. One participant expressed this by stating that:

> *Usually we communicate on top of preconceptions, fears, expectations and confusing feelings and roles. We need to clear that stuff first so we can talk and listen.*

3.2.2. Compassion and empathy

The second cluster comprised terms such as 'compassion and empathy', 'a mindset of compassion and responsibility', 'love', 'solidarity' 'respect', 'kindness', 'a mindset of understanding', 'a responsible mindset, 'trust in people's truth', meeting at a 'basic human emotional level', and seeing everyone 'as a full human being'. This cluster can be seen as a set of skills that allow individuals to see and meet themselves, others and the world with 'care', 'humility' and 'integrity'.

3.2.3. Perspective-seeking and relationality

The third cluster builds on the second, and relates to the ability to see and bring in more perspectives for a broader understanding of one's self, others, and the whole. It was expressed as a need to move towards a 'mindset of community' that 'values diversity', and is based on a deeper 'connection with our body, others, and causes', ultimately 'changing the way we relate to others and the environment'. It involves care and forgiveness regarding our history, and previous and future generations, and is thus: 'an intersectional, decolonial approach to radical love for people and land'. One interviewee stated in this context that 'as much as we are human, we also have a past, which needs to be taken care of'.

3.2.4. Agency, empowerment and sense-making

The fourth cluster was expressed by terms such as 'radical collaboration', 'mindsets of cooperation', 'a solution-based mindset', 'a mindset of possibility, human capacity and agency', the need to 'view ourselves as global citizens', and 'inclusive, intersectional engagement', where 'all of us need to be in the fight [against climate change]'. It refers to people's ability to see and understand broader and deeper patterns, and our own role in the world. The importance of seeing one's role in the broader context was also expressed as follows:

> *I can give you a list of names right now of global leaders who are only thinking of themselves and their own interests. But ask yourself: what real good is that? (…) What I want to see is action, and it doesn't have to be some super gadget. That's what I want, a mindset like this, getting things done.*
> *When we have the wish to co-create together, a new worldview is possible.*

3.2.5. Values-based courage and engagement

The above observation also relates to the fifth cluster, which refers to the ability to navigate oneself through the world based on values and insights into what is important, and having the courage to act on them. Participants highlighted the importance of 'engaging ethically', being 'reflective of values' and of one's 'sense of purpose'. This was related to 'consideration of what is best for the planet', a 'sense of solidarity' and 'passion', together with a 'more critical mindset' needed to adequately address climate change and underlying causes. In the words of a top executive from an UN environmental body:

> *[When our] discussions [are] framed by universal principles of human rights (…), issues that humanity has agreed to believe in, independent of culture, independent of any distinctive item or character, (…) as soon as we are bounded by these, we find solutions.*

3.2.6. Similarities, overlaps and differences

Interestingly, issues of hope, optimism, humor, and associated creativity were also noted frequently. They were mentioned as a kind of catalyst in relation to all of the described clusters of skills, particularly regarding agency, empowerment, and sense-making.

One respondent noted that the opposite of a 'sustainability mindset' is today's dominant' catastrophic mindset', characterized by a lack of engagement in intergenerational equity, which makes change challenging:

> *It's easy for us as 42-year-olds, if not older, to say: well, I am not going to be around, so I am just going to eat meat, drive my tractor, whatever, and I am just going to continue on with 'business as usual'. But that couldn't be a more catastrophic mindset and, unfortunately, it's a very easy mindset to get into because it appeals to our own personal laziness.*

Importantly, no differences in the identified clusters and patterns could be identified between actors, their affiliations, or geographical context. At the same time, representatives of youth groups seemed to be a key driver in calls for change. This can be seen in both the number of R&D Space participants from this group, and repeated references to youth engagement, social climate movements and/or Greta Thunberg.

Finally, when asked about 'elephants in the room', in the COP context, respondents also alluded to (the need for skills/ qualities to address) issues of disconnection to oneself, others, the environment, and the future. The latter included the role of inner change and values, individual and collective responsibility, credibility and (mis)trust, overpopulation, and the well-being of nonhumans. An experienced COP attendee stated:

> *It* [climate change] *manifests in nature. That is something they do not see. They see nature as something up for negotiation. And when they negotiate it, they want to take one piece of nature from here, another piece from there, and exchange them – or summarize them and trade them against something else that can be of service (…).*

3.3. Enabling factors

The following key factors were identified that could enable a mindset shift:

- Mindset shift can be facilitated by certain structures and

approaches/ methods.
- These approaches/ methods relate to improving personal insight, meaningful interaction (communication, collaboration, etc.) and value-based actions.
- The relevance of linking different knowledge systems was highlighted in this context.
- Experiential, safe spaces can function as 'visible manifestations' of an emerging mindset shift.
- They can enable free expression and agency in support of a broader paradigm shift at collective and systems levels.

There was vast agreement among respondents that mindset change and associated skills could be facilitated through new structures[8]. The latter were described as 'spaces for dialogue', 'spaces of open dialogue', 'spaces for co-creation', and 'trust', which are 'inclusive', allow 'open and free discussions without fear' and 'self-care', and link negotiations, interaction and integrated learning. One person stated:

> *If these kinds of spaces expand and become strong enough to have impact, the structural barriers of the COP could, maybe, be transformed into being more supportive of current potential. It is an important first dialogue space and step.*

The importance of such spaces could also be seen in frequent references to the 2018–2019 Talanoa Dialogue. It was stated that 'Talanoa (…) reflects the frustration that we need to find new modes to bring in new perspectives, new ways to run the negotiations (…).' At the same time, participants recognized that the structural, contextual and cultural conditions (notably, marginal input from the Parties [cf. Mundaca et al., 2019]) were not yet in place to tap into this potential.

The need and potential of new spaces and approaches was also highlighted by a high-level UN representative who stated that they can support the development of so-called 'soft' or 'customary' laws that become global standards. This is because:

> *Basically, climate action will be defined by two identities. One is nation states with national climate plans (…). The second basically mirrors nationally determined contributions (NDCs): (…) So, if we get to a point (…) where any big enterprise cannot just operate globally without having a corporate philosophy/ statement on how to deal with climate change (…), then this (…) is being mandated by customers, by the people (…). And that's social norm setting (…). The UN can, in a prudent way, (…) be a conduit, by giving authority, credibility to that [i.e. approaches like the Talanoa or the R&D Space and associated outcomes].*

The relevance of safe spaces could further be seen in the impact of the R&D Space at COP25. Several participants described it with words such as 'empowering, insightful, transformative', and as a source of 'hope'. Such spaces function as a visible manifestation of the emerging mindset shift that is described in Section 3.1.2. At the same time, they enable free expression and values-based agency that supports a broader paradigm shift at collective and systems levels, through reinforcing the kinds of transformative skills that were described in Section 3.2. Like any other skill development, this requires not only the accumulation of facts or knowledge, but also shared reflection, experience and practice.

In this context, the importance of approaches and methods for improving self-reflection and insight, meaningful interaction, and action-taking were highlighted. Respondents noted the limitations of traditional approaches, such as presentations and panel discussions, and the need to explore more innovative approaches. Artificial intelligence, and the 'many innovations and social technologies already existent in [for example] indigenous cultures and social movements' were mentioned. In the words of an indigenous representative:

> *If the world paid attention to the lifestyles [and approaches] of indigenous communities, it would find a solution for the climate situation (…). Inner dimensions are key to their life.*

Another related theme was the importance of broadening perspectives, and the need for spaces and methods that can support the integration of different knowledge systems. Young people, in particular, were interested in and open to, new ways of linking, thinking of, and approaching the issues. This group was in fact overrepresented at R&D Space events, and explicitly requested a similar space, focused on young people, to be provided at the next COP.

4. Discussion and conclusions

Various cross-cutting themes and insights emerged from our study. They can be used to frame and address the potential role of mindsets in supporting change towards sustainability, and have implications for policy and future research. The first theme relates to the link between change in individual and collective systems, and the role of individual skills, or qualities, for global climate change negotiations and actions. The second relates to the need to integrate new approaches and perspectives across scientific, local, and indigenous knowledge systems and its implications. The third concerns the framing of the COP (its aims, potential contributions, and actors) and how existing structures and systems could become more mutually supportive. Finally, the fourth theme relates to the need for new visions and tangible steps to support progress. Although many are aware of the shortfalls in current culture and the need for paradigm shift, there is a lack of clarity regarding how to remedy this. In the following, we describe the four themes in more detail.

Firstly, our findings support other studies that highlight the importance and potential of linking individual and collective change, and call for greater consideration of inner dimensions in sustainability (Carter, 2011; Grusovnik, 2012; O'Brien, 2018; Rimanoczy, 2014; Schäpke, 2018; Waddock, 2015, 2016; Wamsler et al., 2018). In this context, they provide new evidence regarding the role of mindsets in climate negotiations and actions. Mindsets can be seen as the internal lens through which people see and navigate life. Our results show not only that they influence individuals' pursuit of sustainability, but also how they support and implement climate goals. Collectively, they were visible in the culture that seeks to negotiate, enable, and pursue climate action. They were also apparent in ongoing paradigm shifts, such as the partly-declining belief in technologies. Governments still include hypothetical climate technologies in their aim to become carbon neutral by 2050 (Lawrence and Schäfer, 2019). However, the interrelation between technology (such as digitalization) and transformation at individual and collective level, is increasingly noted as a concern for sustainable development (cf. Seele and Lock, 2017; Aksin-Sivrikaya and Bhattacharya, 2018).

Whilst there is a growing body of research that calls for greater consideration of inner dimensions to support transformation towards sustainability, very little is known about the skills that would support such a change. Our study fills this gap by identifying a competency framework consisting of (five clusters of) transformative skills/ qualities. Based on our findings and other recent studies (CCCE, 2019; Mellner, 2020; Kassel et al. 2018; Wamsler and Restoy, 2020), we define them as follows:

- *Openness, self-awareness and reflection:* The ability to meet situations, people, others and one's own thoughts and feelings with openness, presence and acceptance.

[8] This is a key point, as existing structures were said to be a feature of the 'toxic' culture described in Section 3.1. As a former negotiator says: 'This is a community that I've been in for decades now, and I know the individuals involved and, if you catch them in a different setting, many are people who care very deeply about what they do, and have a deep level of care for issues like social (good), environmental (good) and are very beautiful purpose-led people on the whole. And, so, it's weird that we create this structure within which it doesn't feel possible for us to express these things, and to connect to each other in these ways. (…) Structurally it's quite a broken culture.'

- *Compassion and empathy:* The ability and desire to see and meet oneself, others and the world with care, humility and integrity.
- *Perspective-seeking and relationality:* The ability to see and bring in more perspectives for a broader, relational understanding of oneself, others and the whole (e.g. related to one's understanding of the state of the planet and how information is processed).
- *Agency, empowerment and sense-making:* The ability to see and understand broader and deeper patterns, and our own role in the world in this regard. This also relates to optimistic/ hopeful emotions and attitudes.
- *Values-based courage and engagement:* The ability to navigate oneself through the world, based on insights into what is important (intrinsic values), and to have the (moral or ethical) courage to act on them. This relates to principled, action-oriented attitudes.[9]

These skills relate to four domains: personal (how we relate to ourselves); social/ collective (how we relate to others); systems (how we relate to nature and the environment); and the future (how we relate to future generations). They influence our ways of being (ontologies), thinking (epistemologies) and acting (ethics). In this context, further research is needed to understand the specific impact of particular skills (and related capacities/ attitudes), together with the enabling environments, approaches and methods[10] that could best support them to enable transformative learning and transformation across domains and contexts (cf. Kegan, 1994; Mezirow and Taylor, 2009; Schroeder et al., 2020; Wals and Corcoran, 2012; Wamsler, 2020a). These questions also relate to the following themes.

The second theme concerns the need to integrate new approaches and perspectives to build trust, and to develop synergies across scientific, local, indigenous and other knowledge systems to support climate action. It aims to deconstruct metaphysical opposition between 'material' and 'immaterial' aspects of reality (cf. Revel, 2008). While until now the dominant intellectual and social model has focused on reductionist research and materialism, a new discourse is emerging on the role of subjectivity and relational approaches towards sustainability (Walsh et al., 2020; Wamsler, 2020a). This is also apparent in the context of the UNFCC COPs and associated negotiations.[11] In fact, our findings underline the need for more relational and integral approaches, and is consistent with recent work on sustainability and quantum social theory (O'Brien, 2016; Rigolot, 2019; Wendt, 2015), or second order research (Fazey et al., 2018). It involves the development of awareness and understanding of how personal spheres and approaches beyond academic and scientific knowledge can contribute to sustainability-oriented transformations, and to what Lombardo (2012; 2015) calls "future consciousness". Accordingly, the emergent mindset shift integrates inner and outer dimensions, knowledge systems and transformation. It neither prefers one over the other, nor reduces one to the other, but tries to find ethical, skillful and eff ;ective ways to improve our capacity to foster climate action (Wamsler, 2020a; Schroeder and Gonzales, 2019). Mindset shift is thus less about eradicating current mindsets, and more about addressing and including them as one of many perspectives in a broader, integrative view (cf. de Witt et al., 2017). However, further research is needed to understand how to integrate different forms of perspectives and knowledge during high-pressure policy negotiations. This is also relevant to the finding that a more tangible, experiential understanding of climate change impacts might facilitate a mindset shift among decision-makers. An abstract presentation and understanding of the consequences of climate change and temporal bias can in fact be a major stumbling block to fruitful negotiations. Hence, spaces and skills are needed that can allow a more affect-laden sense of emergency to emerge.

This also relates to the third theme; it concerns the framing of the COP and how existing structures and systems could become more mutually supportive. How we see the role of the COP in climate action is key when framing the potential role of mindsets and corresponding shifts in supporting change towards sustainability. It also raises the question of what success means in the context of the COP and climate action? In the words of a former negotiator:

> *We would need to really reframe what the purpose of the COP is, and then you can start using other formats. I think it [the COP] needs a massive repurposing.*

Currently, formal COP negotiations, pavilions and side-events each have their own rules, aims and are only partly related to each other. In addition, the current structure leaves very limited room for maneuvering, as everything is pre-negotiated following an economic, nation-based logic. A mindset shift might thus involve a different framing regarding the COP, notably its aims, potential contributions, actors, and setting, moving from the traditional view (COP as a negotiation platform based on international climate diplomacy), *via* moderately innovative ideas (COP as a multilateral governance set-up), to a complete overhaul that sees COP as an inclusive innovation and learning platform (or network of platforms). The latter would include multilateral governance, but involve more innovative elements such as prototyping, action alliances, experimental learning labs, and R&D spaces. We know that inclusion in decision-making increases compliance (Kuyper et al., 2018a, 2018b), therefore, inclusive, trust-building formats are in this context of utmost importance.

These observations are linked to the fourth theme: the need for new visions and clear steps to support progress. Although indoctrination has been used in the past to influence values, beliefs, and worldviews, ethical arguments suggest that the most legitimate transformations may come through transformative education and experience, and voluntary changes by individuals or groups who are interested in expanding their agency (O´Brien and Sygna, 2013). Our findings show that experimental, safe spaces can play an important role in this context. They are important, visible manifestations of the emerging mindset shift. In addition, they can enable free expression and values-based agency for change through transformative (inter- and intra-subjective) learning and skills. However, the urge for innovation often comes at the cost of such learning and skill development, whilst at first slower, yet deeper innovation, may ultimately drive faster transformation. Recognizing this potential, experimental, safe spaces can also support UNFCCC negotiations by facilitating or nudging experiences, understandings and awareness that are outside or beyond prevailing frameworks. The potential for fundamental transformation is enhanced if paradigms are

[9] Please note that the inner skills or qualities listed here do not focus on more-general key competencies in sustainability, such as systems thinking, anticipatory, normative and strategic competencies and creativity (Wiek et al. 2011), but are intrinsically connected with the latter. For related research on the role of positive emotions for sustainability see Carter (2011) and Davis (2009). For research on the potential linkages between the listed skills/ qualities and notions, such as emotional intelligence and mindfulness, see Wamsler and Restoy (2020); Wamsler et al. (2018) and Wamsler (2018).

[10] Examples are so-called full-spectrum transformative leadership approaches, non-violent communication methods, awareness and compassion cultivation training, perspective-taking techniques, mediation, values-based training, acceptance and commitment therapy, cognitive reappraisal and arts-based approaches (Wamsler and Restoy, 2020).

[11] For example, the former Secretary General of the UNFCCC, Christiana Figueres initiated a special summit for Faith Based Organisations (FBOs) in September 2015. The aim was to highlight the important role of FBOs in climate change negotiations. Another attempt to include consideration of inner dimensions and ethics into UNFCCC negotiations came from the United Nations Educational, Scientific and Cultural Organization (UNESCO), which, during COP23 released the "Declaration of Ethical Principles in relation to Climate Change" (UNESCO 2017), and since then uses its COP slogan "Changing minds, not the climate".

continuously challenged (cf. Mezirow and Taylor, 2009).[12] Creating structures and mechanisms that support (skills that enable) relational modes of knowing, being and acting is thus key to increasing pressure on mainstream practice at individual, collective and policy level. They could be created and supported in the respective home countries, building on the concept of epistemic subsidiarity, which the Paris Agreement is deeply rooted in (Lawrence and Schäfer, 2019). In addition, COPs could officially endorse the creation of safe spaces designed around specific themes, and/or official government representatives could be mandated to engage in them.

Providing space to discuss the need for climate action with regard to mindsets puts the focus on the individual, while not ignoring the necessity for collective and systems change. The notion of people as active agents of change towards sustainability is by no means widely accepted, and conflicts with some of the current, dominant belief systems and worldviews (Ó Brien and Sygna, 2013). Our findings show that it represents, in and of itself, a fundamental challenge that calls for a questioning of commonly-held beliefs and assumptions about human–environment relationships. Creating spaces for related reflection and dialogue is, thus, crucial. These spaces can trigger exchanges on topics that are not included in current agendas and can support the emergence of new potentials and pathways. At the same time, there is a need to scope related efforts, build networks, mainstream interiority into all sectors, and tap into windows of opportunity that arise from outside impulses (such as social climate movements and youth activism) for new paradigms to emerge (cf. Sharma, 2018; Smith and Raven, 2012; Geels and Schot, 2007; Waddock et al., 2020; Wamsler, 2020b). The R&D Space, and the positive response to it, might encourage policymakers, practitioners, and researchers to move towards more innovative formats for exchange and learning, and link them to such activities, processes, and structures. Further research is needed with regard to the design and facilitation of such spaces in organisational and educational settings, as well as the development of methods and processes that best-support transformative skills in different contexts.

By actively considering existing critiques and challenges regarding certain approaches and methods, enabling new mindsets and transformative skills could thus become an important element of social change. This underexplored field is highly relevant in the context of sustainability, the Sustainable Development Goals, and policy responses intended to limit global warming to 1.5 °C above pre-industrial levels (cf. de Coninck et al., 2018; Mundaca et al., 2019). Effective policymaking requires being able to negotiate and manage a plurality of viewpoints. This has been attempted for over two decades, in the form of traditional structures provided by the UNFCCC and the COP. There is thus an urgent need for new approaches, mechanisms and structures to be introduced, tested and, where successful, scaled up. As the global COVID-19 crisis is also showing, overcoming sustainability challenges will not come from pitting nations against each other in traditional negotiation settings. Rather, addressing a single issue that confronts all of humanity will require linking personal, collective/ organisational and systems change. The COP26, set to take place in Glasgow in November 2020, has been postponed due to COVID-19. It is thus crucial to find innovative ways to sustain the momentum and emerging shifts. In particular, we must move away from diplomacy that is only focused on climate change pledges, and instead develop enabling conditions, policies and stimulus packages that activate transformative capacities, to accelerate wider action for equitable and sustainable transformation.

[12] This relates, for instance, to efforts to transform relationships between nations. Figueres states that such efforts made the Paris Agreement, signed during the 2015 COP21, possible, as she consciously addressed and challenges attitudes, worldviews and framings amongst nations.

Author statement

Christine Wamsler is the first author. She lead the framing of the article (article idea, structure, introduction, methodology, results, discussion and conclusions and related literature review), and was responsible for the data analysis and the writing of the article. Niko Schäpke, Carolin Fraude, Dorota Stasiak, Thomas Bruhn and Mark Lawrence were responsible for data collection (R&D Space, surveys, social media, interviews). Niko Schäpke conducted most interviews. All co-authors commented on all sections and different draft versions of the manuscript, and Heike Schroeder and Luis Mundaca contributed with expert knowledge regarding the (context and politics of the) COPs. Carolin Fraude, Dorota Stasiak, Thomas Bruhn and Mark Lawrence also developed and coordinated the overall research design related to the R&D Space.

Declaration of Competing Interest

None.

Acknowledgements

The work of the IASS is funded by the German Federal Ministry for Education and Research (BMBF) and the State of Brandenburg Ministry for Science, Research and Culture (MWFK). The research was supported by two projects funded by the Swedish Research Council Formas: i) *Mind4Change* (grant number 2019-00390; full title: Agents of Change: Mind, Cognitive Bias and Decision-Making in a Context of Social and Climate Change), and ii) *TransVision* (grant number 2019-01969; full title: Transition Visions: Coupling Society, Well-being and Energy Systems for Transitioning to a Fossil-free Society). Finally, Niko Schäpke acknowledges funding from the Chalmers Energy Area of Advance.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:10.1016/j.envsci.2020.06.005.

References

Adger, W.N., Barnett, J., Brown, K., Marshall, N., O'Brien, K., 2013. Cultural Dimensions of climate change impacts and adaptation. Nat. Clim. Change 3 (2), 112–117.
Aksin-Sivrikaya, S., Bhattacharya, C.B., 2018. Where digitalization meets sustainability: opportunities and challenges. Sustainability in a Digital World 37–49.
Carter, D.M., 2011. Recognizing the role of positive emotions in fostering environmentally responsible behaviors. Ecopsychology 3 (1), 65–69.
CCCE, 2019. The center for contemplative science and compassion-based ethics). Social, Emotional, and Ethical Learning (SEE Learning). CCCE, Emory University, Atlanta.
Corbin, J., Strauss, A., 1990. Grounded theory research: procedures, canons, and evaluative criteria. Qual. Sociol. 13 (1), 3–21.
Davis, M.A., 2009. Understanding the relationship between mood and creativity: a meta-analysis. Organ. Behav. Hum. Decis. Process. 108, 25–38.
de Coninck, H., Revi, A., Babiker, M., Bertoldi, P., Buckeridge, M., Cartwright, A., Dong, W., Ford, J., Fuss, S., Hourcade, J.-C., Ley, D., Mechler, R., Newman, P., Revokatova, A., Schultz, S., Steg, L., Sugiyama, T., 2018. Strengthening and implementing the global response. In: Zhai, V.P., Pörtner, H.-O., Roberts, D., Skea, J., Shukla, P.R., Pirani, A., Moufouma-Okia, W., Péan, C., Pidcock, R., Connors, S., Matthews, J.B.R., Chen, Y., Zhou, X., Gomis, M.I., Lonnoy, E., Maycock, T., Tignor, M., Waterfield, T. (Eds.), Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty [MassonDelmotte. IPCC.
de Witt, A., Osseweijer, P., Pierce, R., 2017. Understanding public perceptions of biotechnology through the "Integrative Worldview Framework" Public Underst. Sci. 26 (1), 70–88.
Fazey, I., Schäpke, N., Caniglia, G., Patterson, J., Hultman, J., Van Mierlo, B., et al., 2018. Ten essentials for action-oriented and second order energy transitions, Transformations and climate change research. Energy Res. Soc. Sci. 40, 54–70.
Geels, F.W., Schot, J., 2007. Typology of sociotechnical transition pathways. Res. Policy 36 (3), 399–417.
Glaser, B., Strauss, A.L., 1967. The Discovery of Grounded Theory: Strategies for

Qualitative Research. Aldine de Gruyter, New York.
Grasso, M., Tàbara, J.D., 2019. Towards a moral compass to guide sustainability transformations in a high-end climate change world. Sustainability 11 (10), 2971.
Grusovnik, T., 2012. Environmental denial: why we fail to change our environmentally damaging practices. Synth. Philos. 53 (1), 91–106.
Hodder, I., 1994. The interpretation of documents and material culture. In: Denzin, N.K., Lincoln, Y.S. (Eds.), Handbook of Qualitative Research. Sage, London, pp. 393–402.
IPCC, 2018. In: Masson-Delmotte, V., Zhai, P., Pörtner, H.-O., Roberts, D., Skea, J., Shukla, P.R., Pirani, A., Moufouma-Okia, W., Péan, C., Pidcock, R., Connors, S., Matthews, J.B.R., Chen, Y., Zhou, X., Gomis, M.I., Lonnoy, E., Maycock, T., Tignor, M., Waterfield, T. (Eds.), Special Report on the Impacts of Global Warming of 1.5°C Above pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty. IPCC.
Ives, C., Freeth, R., Fischer, J., 2019. Inside-out sustainability: the neglect of inner worlds. Ambio 1–10.
Kagan, S., 2010. Cultures of sustainability and the aesthetics of the pattern that connects. Futures 42, 1094–1101.
Kassel, K., Rimanoczy, I., Mitchell, S., 2016. The Sustainable Mindset: Connecting being, thinking, and doing in management education" Acad. Manag. Proc. 16659.
Kegan, R., 1994. In Over Our Heads: the Mental Demands of Modern Life. Harvard University Press, Cambridge MA.
Kuyper, J.W., Linnér, B.O., Schroeder, H., 2018a. Non-state actors in hybrid global climate governance: justice, legitimacy, and effectiveness in a post-Paris era. WIREs Clim Change 9, e497.
Kuyper, J.W., Schroeder, H., Linnér, B.O., 2018b. The evolution of the UNFCCC. ARER 43, 343–368.
Lawrence, M., Schäfer, S., 2019. Promises and perils of the Paris Agreement: a truly democratic global climate politics is needed. Science 364 (6443), 829–830.
Lombardo, T., 2012. The Evolution of Future Consciousness. AuthorHouse, UK.
Lombardo, T., 2015. The future evolution of consciousness. World Futures Rev. 6 (3), 322–335.
Meadows, D., 1999. Leverage Points: Places to Intervene in a System, Sustainability Institute Papers. Sustainability Institute, Hartland, VT.
Mellner, C., 2020. On the Becoming of Conscious Co-creators, Eskäret Foundation White Paper on Transformative Skills for the 21st Century. Stockholm, Eskäret Foundation.
Mezirow, J., Taylor, E.W., 2009. Transformative learning in practice. Insights from Community, Workplace and Higher Education. Wiley, San Francisco.
Mundaca, L., Sonnenschein, J., Steg, L., Höhne, N., Ürge-Vorsatz, D., 2019. The global expansion of climate mitigation policy interventions, the Talanoa Dialogue and the role of behavioural insights. Environ. Res. Commun. 1, 061001.
O´ Brien, K., Sygna, L., 2013. Responding to climate change: the three spheres of transformation. In: Proceedings of Transformation in a Changing Climate. 19-21 June 2013, Oslo, Norway. University of Oslo. pp. 16–23.
O'Brien, K., 2016. Climate change and social transformations: is it time for a quantum leap? WIREs Climate Change 7, 618–626.
O'Brien, K., 2018. Is the 1.5 C target possible? Exploring the three spheres of transformation. Current Opinion in Env. Sust 31, 153–160.
Revel, J., 2008. The materiality of the immaterial: foucault, against the return of idealisms and new vitalisms, Dossier: art and Immaterial Labour. Radical Phisosophy 149 (05/06/2008).
Rigolot, C., 2019. Quantum theory as a source of insights to close the gap between mode 1 and mode 2 transdisciplinarity: potentialities, pitfalls and a possible way forward. Sustain. Sci. 15, 663–669.
Rimanoczy, I., 2014. A matter of being: developing sustainability-minded leaders. J. Manag. Glob. Sustain. 2 (1), 95–122.
Schäpke, N., 2018. Linking transitions to sustainability: individual agency, normativity and transdisciplinary collaborations in transition management. IETSR Discussion Paper in Transdisciplinary Sustainability Research 2/2018. Accessed 06 June 2020 at: http://hdl.handle.net/10419/182202.
Schroeder, H., Gonzales, N.C., 2019. Bridging knowledge divides: the case of indigenous ontologies of territoriality and REDD+. For. Policy Econ. 100, 198–206.
Schroeder, H., Di Gregorio, M., Brockhaus, M., Pham, T.T., 2020. Policy learning in REDD + Donor Countries: Norway, Germany and the UK. Glob. Environ. Chang. Part A 63, 102106.
Seele, P., Lock, I., 2017. The game-changing potential of digitalization for sustainability: possibilities, perils, and pathways. Sustain. Sci. 12 (2), 183–185.
Sharma, M., 2018. Radical transformational leadership: strategic action for change agents. North Antlantic Books.
Smith, A., Raven, R., 2012. What is protective space? Reconsidering niches in transitions to sustainability. Res. Policy 41 (6), 1025–1036.
Strauss, A.L., 1987. Qualitative Analysis for Social Scientists. University Press, Cambridge, Cambridge.
UN, 2016. The Sustainable Development Agenda. United Nations [accessed 01 Feb 2020]. https://www.un.org/sustainabledevelopment/.
UNFCCC (2020a) Nationally Determined Contributions (NDCs): The Paris Agreement and NDCs, available at https://unfccc.int/nationally-determined-contributions-ndcs [accessed 31 March 2020].
UNFCCC, 2020b. Conference of the Parties (COP). . available at https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop [accessed 01 February 2020].
Waddock, S., 2015. Reflections: intellectual Shamans, sensemaking, and memes in large system change. J. Chang. Manage. 15 (4), 259–273.
Waddock, S., 2016. Foundational memes for a new narrative about the role of business in society. Humanist Manage. J. 1 (1), 91–106.
Waddock, S., Wadell, S., Goldstein, B.E., Linnér, B.O., Schäpke, N., Vogel, C., 2020. Transformation – how to spur radical change. Our Future on Earth, Future Earth. pp. 82–89.
Wals, A.E.J., Corcoran, P.B. (Eds.), 2012. Learning for Sustainability in Times of Accelerating Change. Wageningen: Wageningen Academic Publishers.
Walsh, Z., Böhme, J., Wamsler, C., 2020. Towards a relational paradigm in sustainability research, practice, and education. Ambio 2020.
Wamsler, C., 2007. Managing urban disaster risk, PhD thesis. Lund University, Sweden.
Wamsler, C., 2018. Mind the gap: the role of mindfulness in adapting to increasing risk and climate change. Sustain. Sci. 13 (4), 1121–1135.
Wamsler, C., 2020a. Education for sustainability: fostering a more conscious society and transformation towards sustainability. Int. J. Sustain. High. Educ. 21 (1) Open access.
Wamsler, C., 2020b. When climate mainstreaming meets conscious radical transformation. Clim. Change forthcoming.
Wamsler, C., Restoy, F., et al., 2020. Emotional intelligence and the sustainable development goals: supporting peaceful, just and inclusive societies. In: Leal Filho, W. (Ed.), Encyclopedia of the UN Sustainable Development Goals. Springer.
Wamsler, C., Brossmann, J., Hendersson, H., Kristjansdottir, R., McDonald, C., Scarampi, P., 2018. Mindfulness in sustainability science, practice and teaching. Sustain. Sci. 13 (1), 143–162.
Wendt, A., 2015. Quantum Mind and Social Science. Cambridge University Press, UK.
Woiwode, C., Schäpke, N., Bina, O., Veciana, S., Kunze, I., Parodi, O., Schweizer-Ries, P., Wamsler, C., 2020. Inner transformations to sustainability as deep leverage points: fostering new avenues through dialogue and reflection. Sustain. Sci forthcoming.